



Interim Forest Management Plan

Property Identifiers

Property Name: Baraboo Hills

Property Designation or Type: State Recreation Area

DNR Property Code: 9037

Forestry Property Code: 5704

Property Location - County: Sauk

Property Acreage: 627 covered by this IFMP

Master Plan Date: None

Property Manager: Steve Schmelzer

Property Assessment

The following should be considered during the property assessment:

A. Ecological Landscape description and property context:

Baraboo Hills State Recreation Area (BHRA) is located in the Western Coulee and Ridges ecological landscape. This ecological landscape is characterized by its highly eroded, un-glaciated topography with steep sided valleys and ridges, high gradient headwaters streams, and large rivers with extensive, complex floodplains and terraces. Vegetation before widespread Euro-American settlement for these parcels were mainly oak woods (white, black, and bur oaks) and mesic woods (sugar maple, basswood, and red, white, and black oak). Oak openings were also present. Many rare species have been documented here due to the diversity, scale, types, condition and context of the natural communities that are present. Oak forests are more abundant here than any other ecological landscape, and mesic maple-basswood forests are also widespread. All of these forest types can provide critical breeding and/or migratory habitat for significant populations of native plants and animals. Maintaining large blocks of these forest types, including areas with combinations of these types, is a major conservation opportunity. Fire-dependent oak ecosystems are well-represented in this ecological landscape, including oak openings, oak barrens, oak woodland, and dry to mesic oak forests.

Bedrock is mostly Paleozoic sandstones and dolomites of Cambrian and Ordovician age. Precambrian quartzite occurs in the Baraboo Hills, near the eastern edge of the ecological landscape. Thin beds of shale occur with other sedimentary rocks in some areas. Bedrock is exposed as cliffs and, more locally, as talus slopes. Soils are windblown loess of varying thickness, and alluvium in the floodplains. Organic soils, especially peats, are rare. Dendritic drainage patterns are well-developed in this mostly un-glaciated ecological landscape. Natural lakes are restricted to the floodplains of large rivers. Large, warm-water rivers are especially important here and include the Wisconsin, Chippewa, and Black. The Mississippi River forms the Ecological Landscape's western boundary. Numerous spring-fed (cold-water) headwaters streams occur here. Cool-water streams are also common.



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Because the parcels that make up the recreation area are scattered across the Baraboo Hills, they lie in three different landtype associations (LTA): West Baraboo Ridge (222Ld03), East Baraboo Ridge (222Ld05), and Hills and Valleys-Wisconsin River Drainage (222Lc18). The characteristic landform pattern of West Baraboo Ridge LTA is steep with hills, stream terraces and floodplains common. Soils are well-drained and moderately well-drained silty and loamy soils with a silt loam surface over non-calcareous silty loess or over loamy or sandy residuum; most areas are over quartzite or glauconitic sandstone bedrock. Greater than 70% of the area has bedrock (igneous, metamorphic, and volcanic) within five feet of the land surface. The characteristic landform of LTA 222Lc18 is hilly, and most of the sandstone bedrock is found within five feet of the surface. Soils in this land type association are well drained and moderately well drained silts and loams with a silt loam or sandy loam surface over non-calcareous clayey or loamy residuum or over silty loess; most areas over limestone, sandstone or shale bedrock.

B. General property description – management, adjacent land uses, topography, soils, etc.:

In 1999, a multiple-partner agreement allowed for the expansion of USH 12 to four lanes through the Baraboo Hills while protecting the natural resource base of the Hills. 1999 Act 9 created the Baraboo Hills project that authorized the department to spend \$5 million for land acquisition for conservation within the boundaries of the Baraboo Range National Natural Landmark. Since 2000, over 1100 acres have been acquired for the Baraboo Hills State Recreation Area.

Individual parcels of the BHRA stretch for about 20 miles from just west of Leland northeasterly to just across the Columbia County line. Most of the tracts either abut or are close to Devil's Lake State Park. One parcel abuts the southern boundary of Natural Bridge State Park. This IFMP will address forest management on parcels that do not abut either Devil's Lake or Natural Bridge state parks.

The tracts are generally on more rugged terrain and are part of larger blocks of wooded landscapes. Compartment 1 (Maps a & b) is the most isolated parcel and is bounded north, south, and east by open land in largely agriculture. Compartment 2, Stands 9 and 10 and Compartment 4 are on the northern edge of the South Range of the Baraboo Hills, overlooking the Baraboo River. Much of area north of South Range is in agriculture or otherwise developed. Elsewhere, the forests surrounding the other parcels are somewhat fragmented locally by agriculture and low-density housing.

Information about previous resource management is limited. Timber harvesting occurred on at least one tract while it was enrolled in MFL. There are indications (e.g., cut stumps) of timber harvest on other parcels. The Potter Preserve has had some timber stand improvement and invasive species management done.

The topography ranges from level on ridgetops to moderate to steep slopes with various aspects. Soils are mainly silt loams and stony silt loams with some rock outcrops. Limited amounts of loam, fine sandy loam, sandy loam, and fluvaquents are present. Slopes range from 0 to 30%. Soils on some slopes are classified as eroded.

C. Current forest types, size classes and successional stages:

- **Oak** (48%) 304 acres; dates of origin 1893-2008; most stands are large sawlogs; one stand is hardwood small sawlogs; 2 stands have been planted and are seedling/sapling; stands are dominated by red oak, red and sugar maple, white oak, basswood, shagbark hickory, white ash



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- **Northern hardwoods** (26%) 163 acres; dates of origin 1938-2007; seedlings/saplings to large sawlogs; dominated by sugar and red maples, red oak, hickory, basswood, white ash, quaking aspen.
- **Central hardwoods** (18%) 110 acres; dates of origin 1955-1975; hardwood poles to large sawlogs; dominated by hickory, red and white oak, white ash red and sugar maple, box elder.
- **Aspen** (<1%) 6 acres; date of origin 1960; large sawlogs; dominated by aspen, red oak, red maple.
- **Bottomland hardwoods** (<1%) 4 acres; date of origin 1970; large sawlogs; dominated by silver maple, white ash, box elder.
- **Non-forested cover types** (6%) 40 acres; includes upland brush, upland grass, farmland.

D. NHI: Endangered, threatened, Special Concern species, Species of Greatest Conservation Need (SGCN):

Ten rare upland or wetland animal species (2 endangered, 6 threatened, 2 special concern) have been documented at or near these parcels of the Baraboo Hills State Recreation Area. The animal species are all SGCN. Two of these species are also federal species of concern. Four aquatic species of animals have also been documented. Fourteen species of upland or wetland rare plants have been documented at or near these parcels including 1 endangered, 3 threatened, and 10 special concern species. One threatened species of aquatic plant has also been documented.

E. Wildlife Action Plan Conservation Opportunity Areas (COA), Important Bird Areas (IBA):

These parcels are within the Baraboo Hills and North Range COA and the Baraboo Hills IBA.

F. Significant cultural or archeological features

Archaeological and historical features have been identified on or near at least of the BHRA tracts addressed within this interim plan.

G. Invasive species:

Common buckthorn, Japanese barberry, honeysuckle, garlic mustard, and multi-flora rose have been observed.

H. Existing State Natural Areas (SNA) designations/natural community types limited in the landscape:

There are no designated SNAs on these tracts.

Some acreage of restorable oak savanna has been identified on the Potter Preserve (Compartment 4).

I. Primary public uses:

Hiking, snowshoeing, watching wildlife, hunting

J. Biotic Inventory status: None

K. Deferral/consultation area designations: None



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IFMP components

Note that this IFMP addresses timber management in stand-alone BHRA parcels including the Potter Preserve. The parcels consist of Compartment 1 Stands 1, 2, 3; Compartment 2 Stands 1-3, 9-13; Compartment 3 Stands 1, 2; and Compartment 4.

Management Objectives:

1. Allow the central and northern hardwood types to regenerate naturally while encouraging oak maintenance whenever possible.
2. Maintain sufficient canopy cover to provide habitat for forest interior species where applicable.
3. Allow or promote the conversion of aspen to other cover types.
4. Where feasible, manage oak stands as oak savanna. Where long-term maintenance of oak forest is not feasible, convert to northern hardwoods while maintaining the oak component as long as possible.
5. Preserve the integrity of known archaeological and historical features by following DNR Manual Code 1810.1 (Historic Preservation), the department's Burials, Earthworks, and Mounds Preservation Policy & Plan, state statutes and federal laws.
6. Conduct invasive species management where needed to ensure regeneration of adequate numbers of desirable tree species.

Property Prescriptions

1. Commercial timber sales and non-commercial practices may be used to achieve management objectives.
2. For the **Potter Preserve** (Compartment 4), follow the existing management plan for all cover types.
3. **Hardwood stands:** manage in accordance with the department's silvicultural handbook. Use uneven-aged management techniques (single tree selection and gaps) to promote northern hardwood and central hardwood timber types. Where gaps are created via commercial harvest, cut all unwanted woody vegetation taller than 4 feet to promote regeneration of desirable tree species such as oak and hard maple. Maintain an oak component in hardwood stands as long as possible. Manage the oak where feasible. In the stands where central or northern hardwood maintenance or conversion is chosen, efforts will be made to plant oak into the largest gaps to keep an oak component in these stands.
4. **Oak:** In stands, where oak regeneration can be accomplished without significant investment, use management techniques, including patch selection, to maintain a large component of oak on site. For oak stands that will convert to northern or central hardwoods, use uneven-aged techniques and maintain an oak component for as long as possible. For oak savanna restoration: conduct only the first-stage harvest of a shelterwood, reducing canopy closure to 50-60% (50-60 ft of basal area per acre). Thin from below. If possible, whole tree harvest is preferred. Implement prescribed burns to mimic natural disturbance patterns, reduce brush and stimulate native woodland herbs.
5. **All stands:** retain standing dead snags and reserve/legacy trees as groups or individuals within harvested stands unless a safety hazard exists. Adhere to best management practices for water quality and invasive species in all management activities. Trees may be planted to direct desired stand composition and to convert upland brush and farm land to forest.
6. **Invasive species:** identify invasive plant species and implement control practices such as hand pulling and biological, herbicide, and mechanical control to eliminate or reduce negative impacts.



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Summary of Public Involvement and Comments Received

Maps (Optional)

- a. Property Locator Map
- b. Cover Types from Forest Reconnaissance for Compartment 1
- c. Cover Types from Forest Reconnaissance for Compartment 3
- d. Cover Types from Forest Reconnaissance for Compartment 2 Stands 9 and 10
- e. Cover Types from Forest Reconnaissance for Compartment 2 Stands 1, 2, 3, 11, 12, and 13
- f. Cover Types from Forest Reconnaissance for Compartment 4

Note that cover type maps b-f are arranged from west to east; see Map a.



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PREPARED BY:

Property Manager

Date

APPROVED:

Area Program Supervisor

Date

REVIEWED BY:

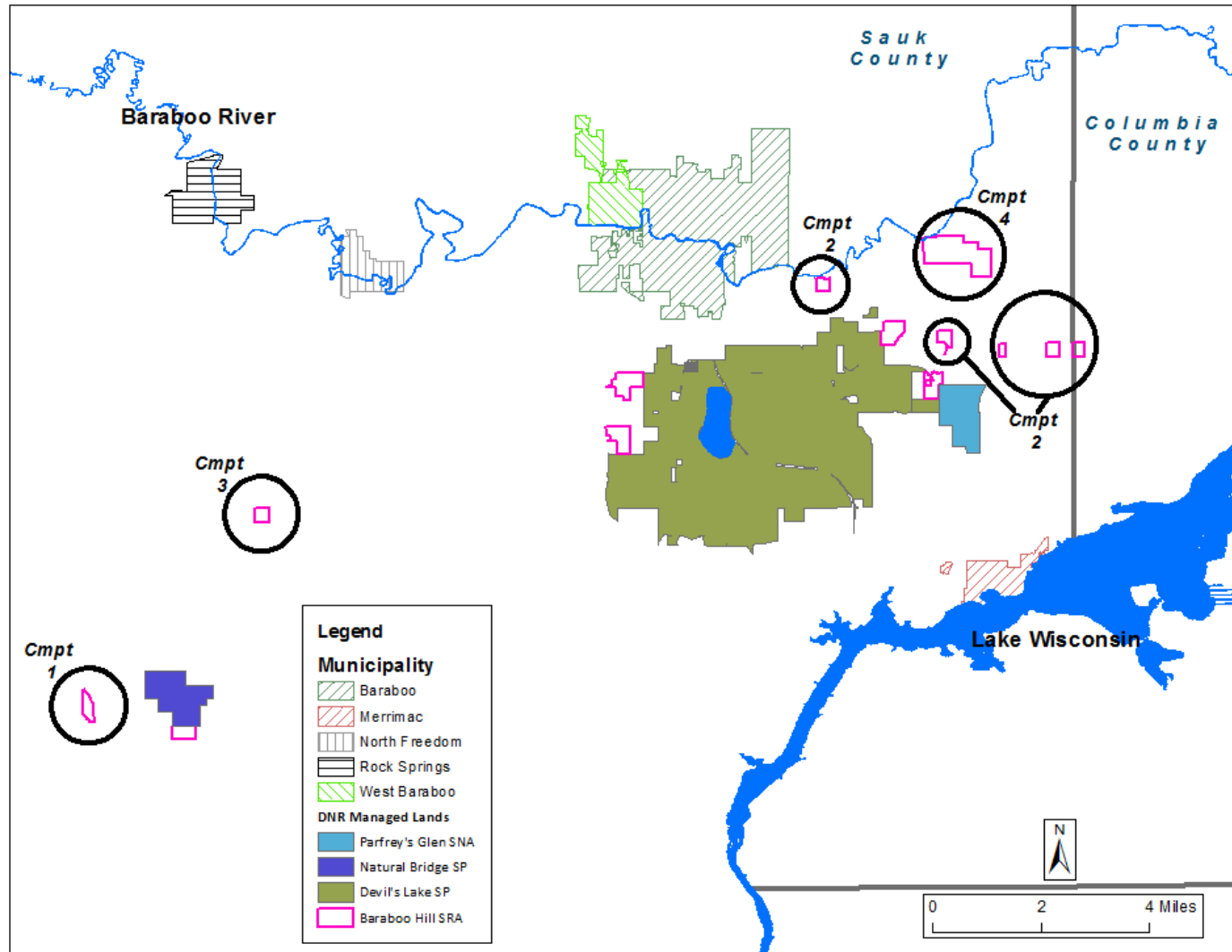
Forester

Date

District Ecologist

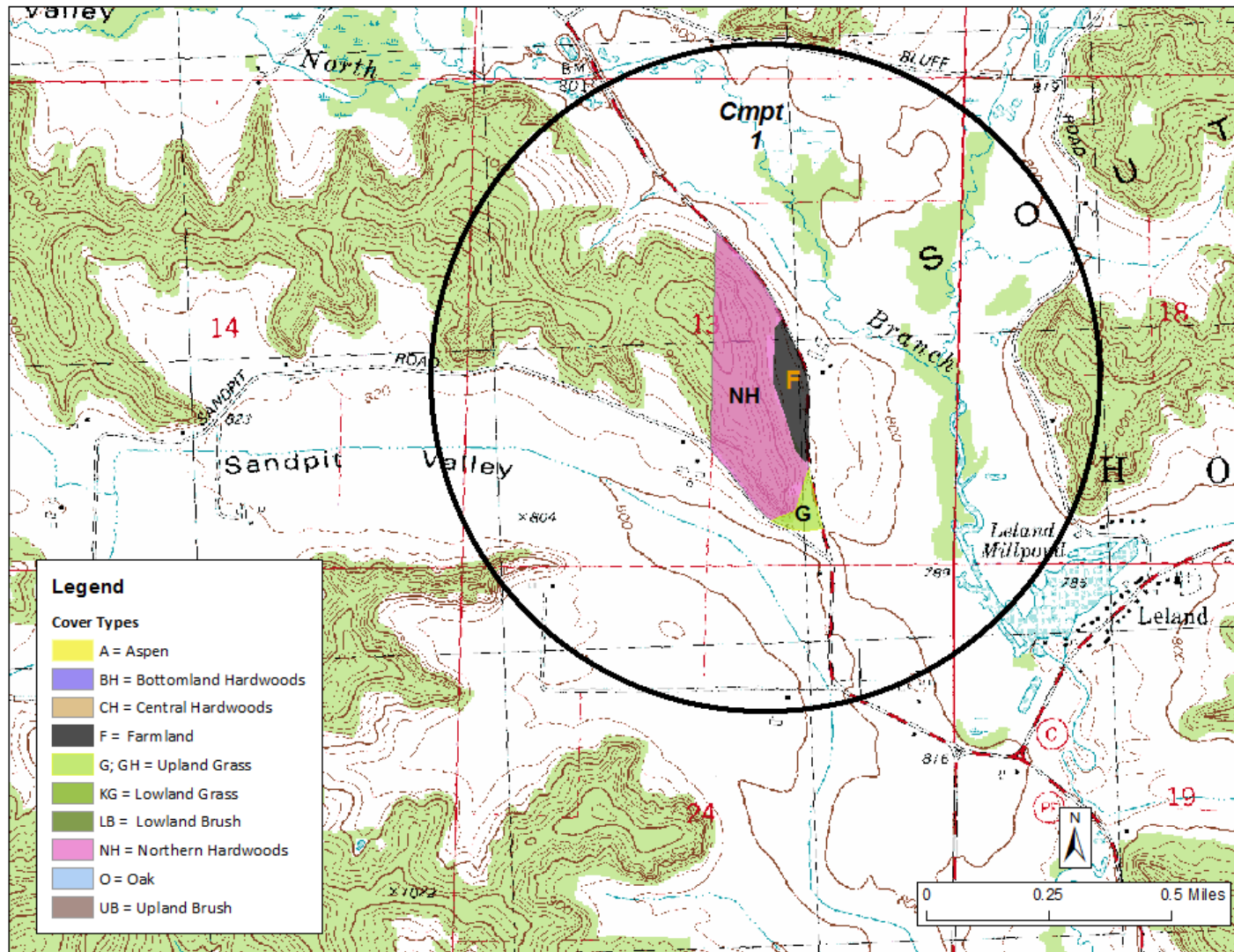
Date

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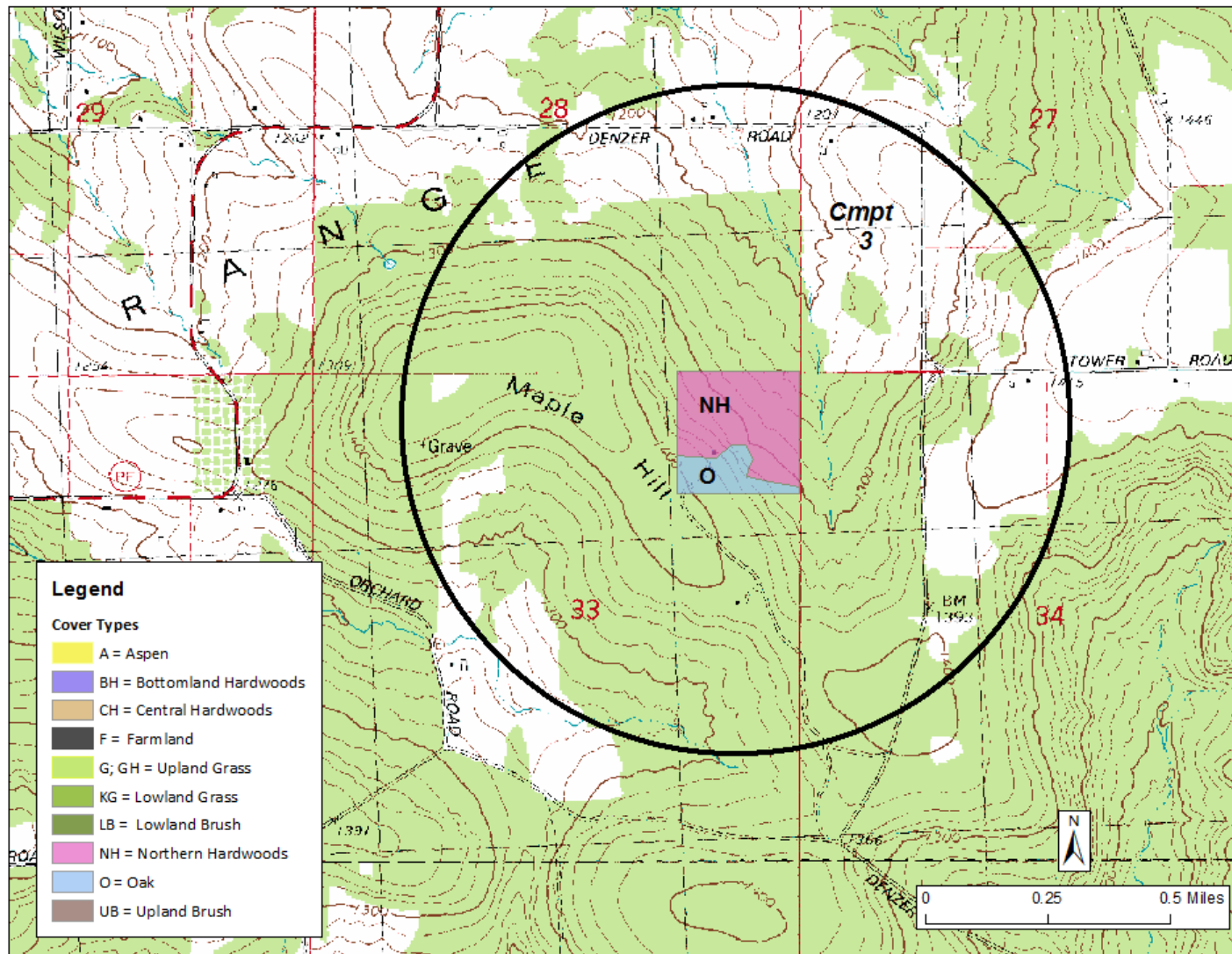
a. Location of Baraboo Hills State Recreation Area. Subject parcels are circled in black and identified with compartment number.

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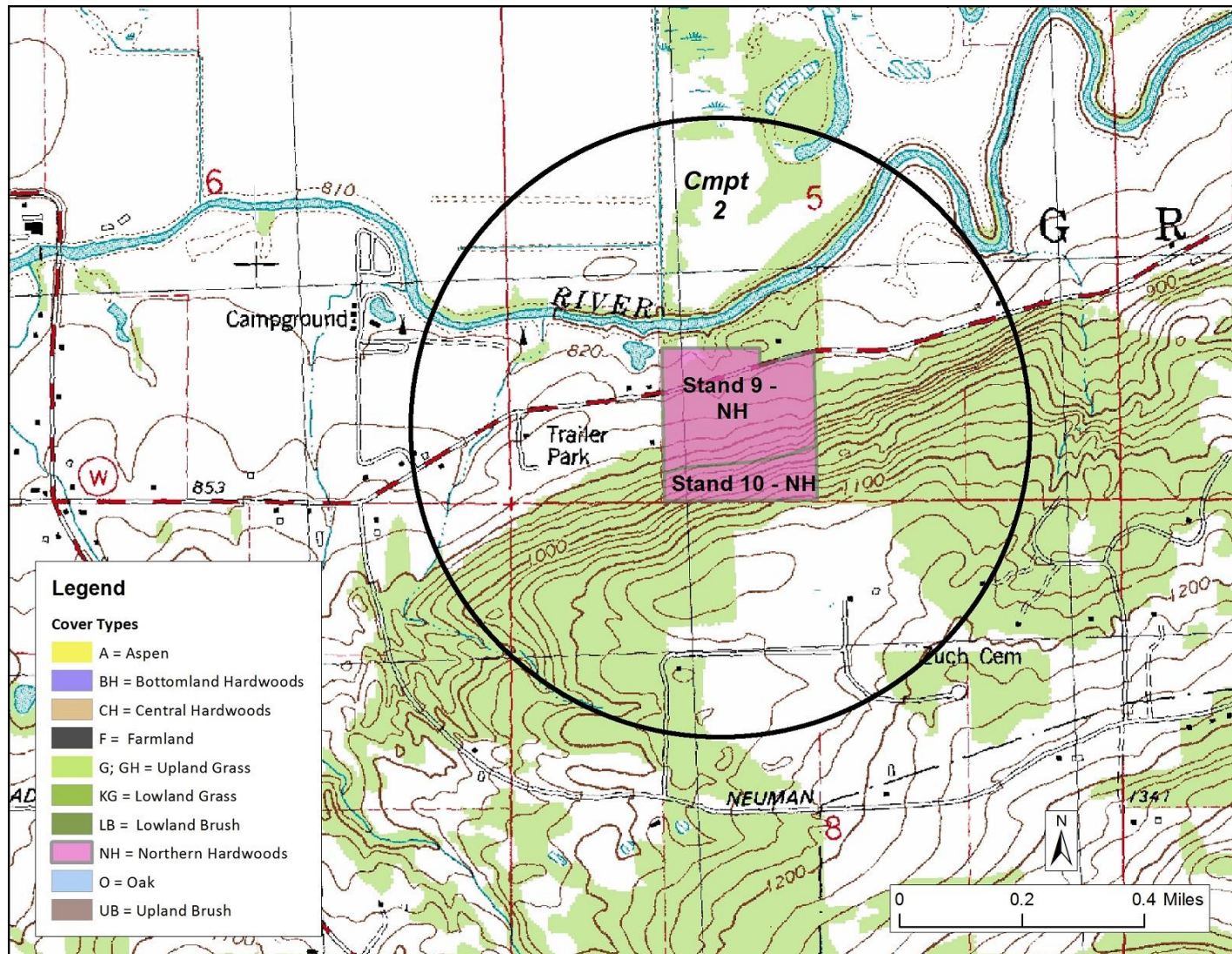
b. Cover types from forest reconnaissance for Compartment 1, Baraboo Hills SRA.

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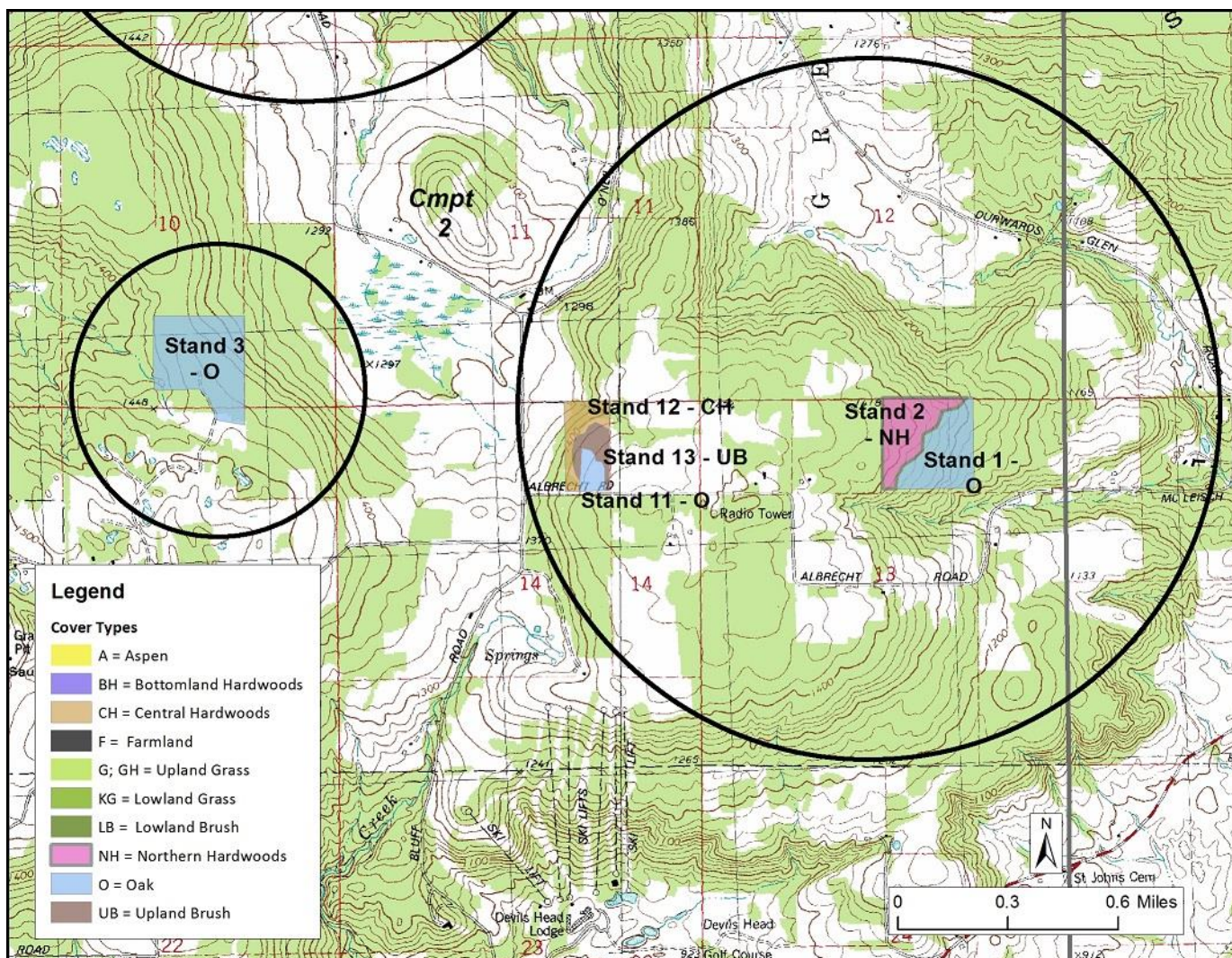
c. Cover types from forest reconnaissance for Compartment 3, Baraboo Hills SRA.

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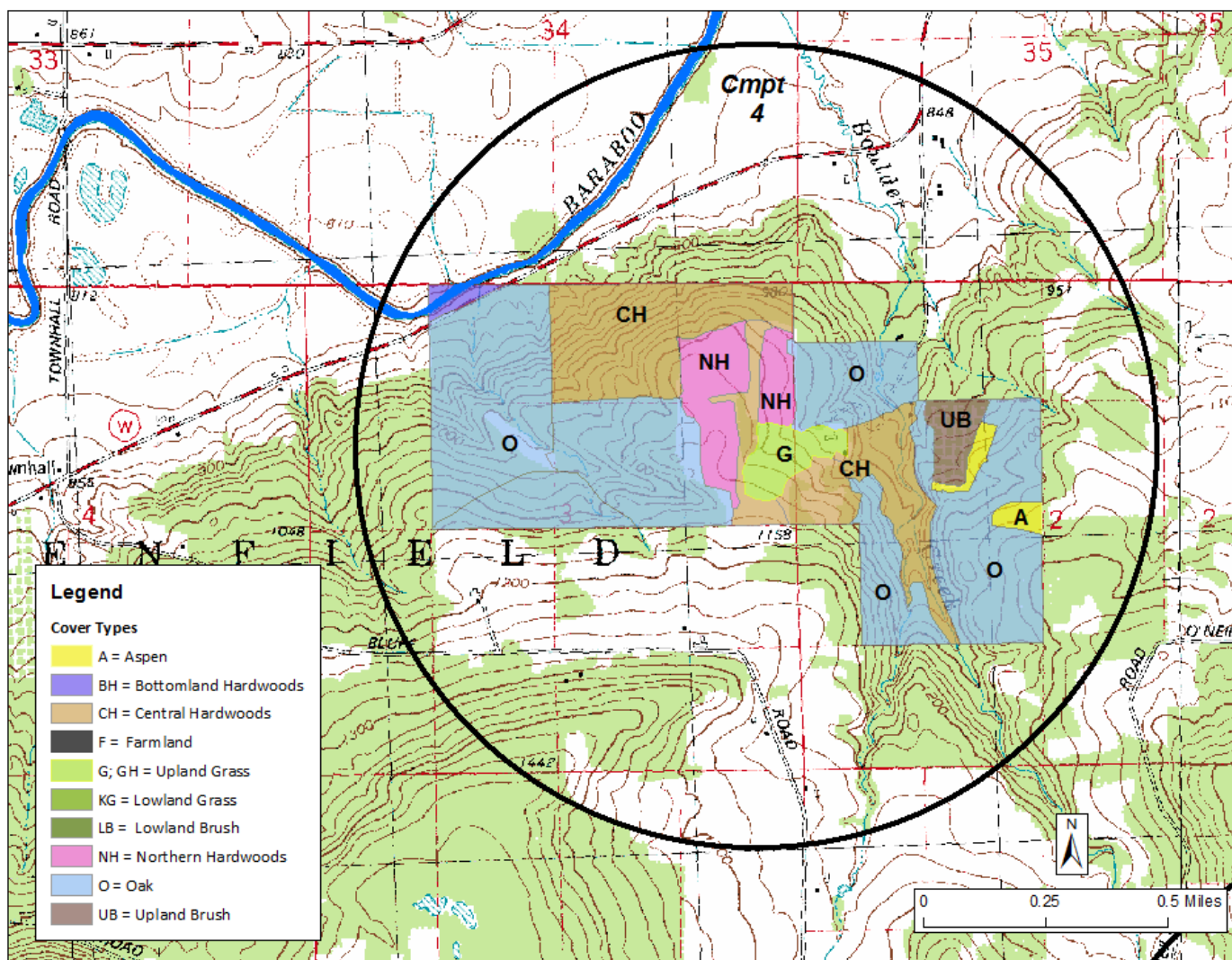
d. Cover types from forest reconnaissance for Compartment 2, Stands 9 and 10, Baraboo Hills SRA.

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e. Cover types from forest reconnaissance for Compartment 2, Stands 1, 2, 3, 11, 12, and 13, Baraboo Hills SRA.

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f. Cover types from forest reconnaissance for Compartment 4 (Potter Preserve), Baraboo Hills SRA.